APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,609	02/27/2004	Timothy E. Snodgrass	03CR254/KE	9039

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EXAMINER
VERDI, KIMBLEANN C

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/789,609	SNODGRASS, TIMOTHY E.
	Examiner	Art Unit
	KimbleAnn Verdi	2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 April 2008</u>.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1,4-12,15,16,19 and 20</u> is/are pending in the application.
　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1, 4-12, 15-16, 19 and 20</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
　　a)☐ All　b)☐ Some * c)☐ None of:
　　　1.☐ Certified copies of the priority documents have been received.
　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.
　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____ .

DETAILED ACTION

Claims 1, 4-12, 15-16, and 19-26 are pending in the current application.

Claim Objections

1.   The combination of claims 15, 16, and 9 are objected to, but would be allowable

if rewritten in independent form including all of the limitations of the combination of

claims 15, 16 and 9.

2.   Claims 10-12 are objected to because of the following informalities:

      a.   claim 10, lines 5 and 6, and claim 11, line 2, the recitation of "marshalling

operation", should be "marshalling data from a waveform application";

      b.   claim 10, line 9, and claim 12, line 2, the recitation of interfacing operation

should be "interfacing the marshaled data".

      c.   Appropriate correction is required.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1, 4-7, 9-10, 12, 15, 19-20 and 22 are rejected under 35 U.S.C. 103(a) as

being unpatentable over "CORBA™ Delays in a Software-Defined Radio", by Bertrand

et al. (hereinafter Bertrand) in view of 2002/0199031 A1 to Rust et al. (hereinafter Rust)

and in further view of "Implementation of a WNW within the JTRS Operating

Environment Using Networking APIs", by Anderson et al. (hereinafter Anderson).

5.   As to claim 1, Bertrand teaches the invention substantially as claimed including

an apparatus that implements services for a waveform application, the apparatus

comprising:

an object request broker (CORBA object request broker, page 153, left col., line

16) that marshals data from the waveform application for communication (page 152,

Fig. 1 and page 155, left col., lines 58-61).

Bertrand does not explicitly teach wherein at least a portion of the object request

broker is implemented in hardware;

wherein the portion of the object request broker implemented in hardware is an

application specific integrated circuit (ASIC); and

an object request broker interface that communicates the marshaled data using a

memory pool.

However Rust teaches wherein at least a portion of the object request broker is

implemented in hardware (paragraph [0059]); wherein the portion of the object request

broker implemented in hardware is an application specific integrated circuit (ASIC)

(paragraph [0059]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the ORB of Bertrand with the teachings of Common Object Request Broker Architecture from Rust because this feature would have provided a mechanism for implementing component objects an appropriate interfaces in a component software architecture such as the Object Management Group's Common Object Request Broker Architecture which can be supplemented by, or incorporated in, ASICs (paragraph [0059] of Rust).

In addition Anderson teaches an object request broker interface (commercial Object Request Brokers (ORBs), Fig. 6) that communicates the marshaled data using a memory pool (used pointers to shared memory to address transport delays, transfer methods supported by ORBs, page 975, right col., lines, 36-48, upgrade to shared memory approach used in Rockwell Collins Link 16 port to the JTRS SCA under JTRS Step 2b, left col., lines 29-31).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the ORB communication mechanism of Bertrand as modified by Rust with the teachings of shared memory from Anderson because this feature would have further provided a mechanism to address the transport delays of the CORBA™ call copying of data (page 975, right col., lines 36-42 of Anderson).

6.   As to claim 4, Bertrand teaches the apparatus of claim 1, wherein the object

request broker interface comprise a pluggable protocol interface (e.g. ease of

technology insertion, CORBA™ hides details of the hardware architecture, left col., lines

30-44).

7.   As to claim 5, Bertrand as further modified teaches the apparatus of claim 1,

wherein the object request broker interface comprises a custom interface (part of SCA

OE Framework, specified interface for CORBA™, page 972, left col., line 46, right col.,

lines 1-5 of Anderson).

8.   As to claim 6, Bertrand teaches the apparatus of claim 1, wherein the object

request broker is a common object request broker architecture broker (page 153, left

col., line 16).

9.   As to claim 7, Bertrand as further modified teaches the apparatus of claim 1,

wherein the memory pool comprises a multi-port memory pool (shared RAM Card with 2

ports, Fig. 6, of Anderson).

10.   As to claim 9, Bertrand teaches the apparatus of claim 1, wherein the at least a

portion of the object request broker interface that is implemented in hardware comprises

an operating system protocol stack (software stack, Fig. 1, Fig. 4).

11.   As to claim 10, this claim is rejected for the same reasons as claim 1, see the rejection to claim 1 above.

12.   As to claims 12, this claim is rejected for the same reasons as claim 9, see the rejection to claim 9 above.

13.   As to claim 15, Bertrand teaches the invention substantially as claimed including a system for a joint tactical radio system (JTRS) compliant device that provides communication at low power requirements, the system comprising:

an object request broker (ORB) (CORBA™ object request broker, page 153, left col. , line 16) that marshals data from a waveform application (page 152, Fig. 1 and page 155, left col., lines 58-61);

a pluggable protocol interface (e.g. ease of technology insertion, CORBA™ hides details of the hardware architecture, left col., lines 30-44) that communicates the marshaled data from the hardware-implemented ORB (CORBA™ middleware, can perform a data format translation, converting data to a format appropriate to the receiving, left col., lines 5-7).

Bertrand does not explicitly teach wherein at least a portion of the object request broker is implemented in hardware rather than software;

wherein the portion of the object request broker implemented in hardware comprises an application specific integrated circuit (ASIC);

wherein at least a portion of the pluggable protocol interface is implemented in hardware; and

a memory pool that communicates data from the pluggable protocol interface directly and without transport overhead.

However Rust teaches wherein at least a portion of the object request broker is implemented in hardware rather than software (paragraph [0059]); wherein the portion of the object request broker implemented in hardware comprises an application specific integrated circuit (ASIC) (paragraph [0059]); and wherein at least a portion of the pluggable protocol interface is implemented in hardware (paragraph [0059]).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified the ORB of Bertrand with the teachings of Common Object Request Broker Architecture from Rust because this feature would have provided a mechanism for implementing component objects an appropriate interfaces in a component software architecture such as the Object Management Group's Common Object Request Broker Architecture which can be supplemented by, or incorporated in, ASICs (paragraph [0059] of Rust).

In addition Anderson teaches a memory pool (e.g. shared memory) that communicates data from the pluggable protocol interface directly and without transport overhead (CORBA™ call copying of data used pointers to shared memory to address

transport delays, transfer methods supported by ORBs, page 975, right col., lines, 36-

48, upgrade to shared memory approach used in Rockwell Collins Link 16 port to the

JTRS SCA under JTRS Step 2b, left col., lines 29-31).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to have further modified the ORB communication mechanism of

Bertrand as modified by Rust with the teachings of shared memory from Anderson

because this feature would have further provided a mechanism to address the transport

delays of the CORBA™ call copying of data (page 975, right col., lines 36-42 of

Anderson).

14.   As to claim 19, Bertrand as modified teaches the system of claim 15, wherein the

JTRS compliant device is in an unmanned craft (radio prototype tested in the field with

Vehicular, right col., lines 11-12 of Anderson).

15.   As to claim 20, Bertrand as modified teaches the system of claim 15, wherein the

JTRS compliant device is a battery powered radio (single channel JTRS wideband radio

prototype, right col., line 14 of Anderson).

16.   As to claim 22, Bertrand as further modified teaches wherein the waveform

application is a first waveform application associated with the first communication

device (JTRS with WNE, Figure 3, page 974, right col., lines 5-16 of Anderson), the

method further comprising:

communicating the marshaled data from a second communication device to a

second waveform application (JTRS with WNE & SINCGARS, WNE Modulation 2,

Figure 3, page 974, right col., lines 5-16 of Anderson).

17.   Claims 8, 11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over "CORBA™ Delays in a Software-Defined Radio", by Bertrand et al. (hereinafter

Bertrand) in view of 2002/0199031 A1 to Rust et al. (hereinafter Rust) and in further

view of "Implementation of a WNW within the JTRS Operating Environment Using

Networking APIs", by Anderson et al. (hereinafter Anderson), as applied to claims 1, 10,

and 15 above, and further in view of 2004/0019765 A1 to Klein, JR. (hereinafter Klein).

18.   As to claim 8, Bertrand as further modified by Anderson does not explicitly

disclose wherein the at least a portion of the object request broker that is implemented

in hardware comprises logic and data formatting functions that are determined to

consume excessive processor throughput for a software application.

However Klein teaches wherein the at least a portion of the object request broker

that is implemented in hardware comprises logic and data formatting functions that are

determined to consume excessive processor throughput for a software application

(paragraph [0007]).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to have further modified the ORB of Bertrand as further modified by

Anderson with the teachings of customized logic functions from Klein because this

feature would have further provided a mechanism for customizing logics functions to the

desired application to obtain a more compact, lower power, and higher performance

solution (paragraph [0007] of Klein).

19.   As to claim 11, this claim is rejected for the same reasons as claim 8, see the

rejection to claim 8 above.

20.   As to claim 16, this claim is rejected for the same reasons as claim 8, see the

rejection to claim 8 above.

21.   Claims 21, 23- 26 are rejected under 35 U.S.C. 103(a) as being unpatentable

over "CORBA™ Delays in a Software-Defined Radio", by Bertrand et al. (hereinafter

Bertrand) in view of 2002/0199031 A1 to Rust et al. (hereinafter Rust) and in further

view of "Implementation of a WNW within the JTRS Operating Environment Using

Networking APIs", by Anderson et al. (hereinafter Anderson), as applied to claims 1, 10,

and 15 above, and further in view of "Application of a Multi-Processor SoC Platform to

High-Speed Packet Forwarding", by Paulin et al (hereinafter Paulin).

22.   As to claim 21, Bertrand as further modified by Anderson does not explicitly

disclose wherein no middleware is used.

        However Paulin teaches wherein no middleware is used (page 4, left col., lines

15-23).

        It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to have further modified the ORB of Bertrand as further modified by

Anderson with the teachings of ORB from Paulin because this feature would have

further provided a mechanism for brokering transactions between clients and servers

utilizing a first-come, first-serve load balancing mechanism (page 4, left col., lines 15-20

of Paulin)

23.   As to claim 23, this claim is rejected for the same reasons as claim 21 since

claim 23 recites the same or equivalent invention, see the rejection to claim 21 above.

24.   As to claim 24, Bertrand as further modified teaches wherein the pluggable

protocol interface is entirely implemented in hardware (page 4, left col., lines 15-23 of

Paulin).

25.   As to claim 25, wherein the object request broker is entirely implemented in

hardware (page 4, left col., lines 15-23 of Paulin).

26.   As to claim 26, this claim is rejected for the same reasons as claim 21 since

claim 26 recites the same or equivalent invention, see the rejection to claim 21 above.

Response to Arguments

27.   Applicant's arguments with respect to claims 1, 4-12, 15-16, and 19-26 have

been considered but are moot in view of the new ground(s) of rejection.

Conclusion

28.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

29.   5,903,281 to Chen et al., and 6,477,636 B1 to Osterholzer disclose increasing

processor throughput by implementing functions in an ASIC.

30.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to KimbleAnn Verdi whose telephone number is (571)270-

1654. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EST..

31.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

32.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/
Supervisory Patent Examiner, Art Unit 2195

April 24, 2008
KV